

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.9622
C2L522

UNITED STATES
DEPARTMENT OF AGRICULTURE
LIBRARY



BOOK NUMBER 1.9622
 C2L522

721655

LEGENDS AND SUPPLEMENTAL INFORMATION
TO ACCOMPANY
VEGETATION-SOIL MAPS OF CALIFORNIA*

January 15, 1949

Contents

1. General Information - Vegetation, Soils and Sites.
2. Illustrated Glossary of botanical terms.
3. Table A - Legend for plant species and miscellaneous elements mapped, with tabulation of sprouting nature and browse value of plants listed.
4. Recognition Key for Plant Species Mapped.
5. Table B - Legend for soils mapped, with tabulation of identifying characteristics.
6. Table C - Ratings of the relative suitability of the soils mapped for timber and grass production, with a listing of the soil and climatic factors governing suitability.

*A series of maps prepared by the
CALIFORNIA FOREST AND RANGE EXPERIMENT STATION
for the
STATE DIVISION OF FORESTRY,
as authorized by Senate Bill No. 735,
Chapter 1538, Statutes of 1947

The California Forest and Range Experiment Station is maintained at Berkeley in cooperation with the University of California.

721655

LEGENDS AND SUPPLEMENTAL INFORMATION
TO ACCOMPANY
VEGETATION-SOIL MAPS OF CALIFORNIA

GENERAL INFORMATION

PART 1 - VEGETATION

On the Vegetation-Soil maps, the dominant plant species present in each delineated area (excluding grass and associated herbs) are indicated by the letter groups like Af Cc and R D T M Ct. Each delineated area may have one or more vegetation elements present (commercial conifers, non-commercial conifers, hardwoods, chaparral, sagebrush, bushy herbs, grass, marsh), each of which covers from 5 to 100 percent of the ground area.^{1/} Any species is considered dominant on a delineated area if it occupies 20 percent or more of the cover formed by the vegetation element to which it belongs. The order of the symbols within each vegetation-element group indicates the relative abundance of the species. Symbols of elements not classified as to species (grass, marsh, and certain bushy herbs), and land status classifications (barren, cultivated, urban-industrial), are included with the species symbols in their proper order of abundance, or alone, as the case may be.

Table A lists the plant species symbols occurring on the quadrangle map, with common and scientific names for each. Sprouting characteristics and browse values^{2/} of all species are tabulated. Miscellaneous element symbols are defined at the end of the table.

A "Recognition Key"^{3/} is appended which is designed to enable laymen to identify plant species which have been mapped as dominants on the quadrangle. Grasses and weeds and those trees and shrubs which are not abundant enough in any type to be shown by symbol, are not included in the key.

^{1/} For information on classification of elements, see illustrated descriptive sheets titled "The Timber Stand and Vegetation-Soil Maps of California," January 15, 1949. Condensed information is also given in "Legends and Supplemental Information to Accompany Timber Stand Maps of California," which accompanies each set of Timber Stand Maps.

^{2/} Ratings of Browse Values by Dr. A. W. Sampson, Professor of Forestry (Range Management), School of Forestry, University of California.

^{3/} Prepared by Mrs. Beryl Schreiber Jespersen, Botanist, California Forest and Range Experiment Station. Mrs. Jespersen identifies the field collections made to verify species mapped, and has assisted in all other botanical phases of the project.

The Recognition Key has been carefully designed to fulfill the limited function of enabling any person who lacks technical botanical training to identify the dominant species on a quadrangle. Thus he can correlate what he sees on the ground with the mapped species symbols and tabulated data. Insofar as possible, nontechnical terms have been used, and an illustrated glossary has been provided to describe those technical terms which are essential in even a simplified key. Most taxonomic keys are based on floral differences between plants, but flowers are available only during certain seasons of the year, and they are not adapted to nontechnical description. Therefore, the Recognition Key is based primarily on gross foliage characteristics, with references to flowers, fruits, bark, etc. when necessary or desirable to emphasize obvious distinguishing characteristics.

PART 2 - SOILS

The soils are mapped according to series and depth class.^{1/}

A SOIL SERIES is designated by the numerator of a fraction, e.g. 812.
 4

A DEPTH CLASS is designated by the denominator of the same fraction. Depth Class 1 is a soil under 1 foot deep, class 2 is a soil 1 to 2 feet deep, class 3 is 2 to 3 feet deep, class 4 is 3 to 4 feet deep, and class 5 is over 4 feet deep.

Table B lists the map symbols for the soils occurring on this quadrangle, with the identifying characteristics of each soil. Table C shows ratings of the relative suitability of these soils for timber and grass, and the soil and climatic factors governing suitability.

GENERAL CLASSES OF SOIL are not identified in detail because they commonly occur as agricultural or potentially agricultural lands. Soil surveys of such lands have already been made, or might reasonably be expected to be made, by other agencies specializing in agricultural surveys. General classes of soil are identified by symbols of "hundred" numbers, not in fractional form, because depths are not given. These are defined as follows:

1/ This system of mapping was recommended by R. Earl Storie, Soil Technologist, Division of Soils, University of California. Mr. Storie is also giving technical guidance to this project in soil classification and mapping, and is supplying the soil suitability ratings for grass production.

Additional valuable assistance in soil classification is being provided by Mr. R. A. Gardner, Senior Soil Correlator, Bureau of Plant Industry, Soils, and Agricultural Engineering, Division of Soil Survey.

100 - Unclassified soils in cultivated and intensively pastured areas
 Croplands and intensively used irrigated or non-irrigated pastures occurring in large blocks on either alluvial or residual soils; also those included types having a cover other than crop or grass, but occurring as a part of the block.

200 - Unclassified secondary soils on bottom lands
 Non-cultivated areas (other than urban-industrial or areas essentially devoid of soil) and small cultivated areas, having alluvial soils with undeveloped or only slightly developed profiles.

400 - Unclassified secondary soils on terraces and benchlands
 Non-cultivated areas (other than urban-industrial or areas essentially devoid of soil) and small cultivated areas, having alluvial soils with moderately to strongly developed profiles.

700 - Areas essentially devoid of soil
 Talus slopes, riverwash, placered areas, mine tailings, and bare rock areas.

PART 3 - SITES

SITE QUALITY OF TIMBER CROPLANDS—the capacity of the land for growing timber crops—is indicated by the single-number symbols (Arabic or Roman) like 4 and II. Each delineated timber cropland area has its predominant site quality designated.

Pine, Fir, Pine—Douglas-fir, and Pine—Douglas-fir—Fir types are graded in terms of the total height that average dominant trees reach at 300 years of age—by 25-foot classes. These classes are designated by Arabic numbers as follows:

<u>Symbol</u>	<u>Ht. in ft. at 300 yrs.</u>
1	75
2	100
3	125
4	150
5	175
6	200
7	225

Douglas-fir and Redwood types are graded in terms of the total height that average dominant and codominant Douglas-fir trees reach at 100 years of age—by 30-foot classes.^{1/} These classes are designated by Roman numbers as follows:

^{1/} No separate grading system has as yet been established for redwoods.

<u>Symbol</u>	<u>Ht. in ft. at 100 yrs.</u>
I	200
II	170
III	140
IV	110
V	80

Spruce and Lodgepole pine—Mountain hemlock types are each considered a single site quality class. Spruce sites are designated by the Roman numeral X, and lodgepole pine—mountain hemlock sites by the Roman numeral XX.

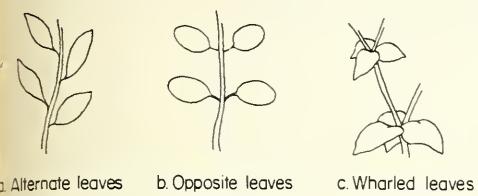
ILLUSTRATED GLOSSARY

METRIC
INCHES

This glossary illustrates scientific terms which are used or may be used in the recognition keys to the dominant plant species listed as occurring on this quadrangle map or subsequent maps to be issued. An inch-millimeter rule is included to facilitate measurements in the field, since these measurements are often critical in distinguishing species.

A. LEAVES

Stem with leaf arrangement:

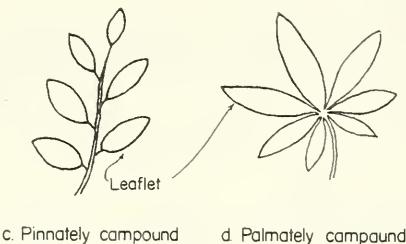


a. Alternate leaves b. Opposite leaves c. Whorled leaves

2 Leaf types



a. Simple b. Bundle (fascicle)

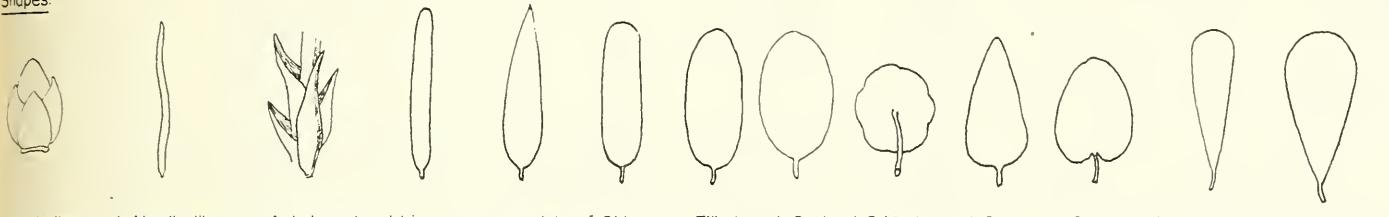


c. Pinnately compound d. Palmately compound



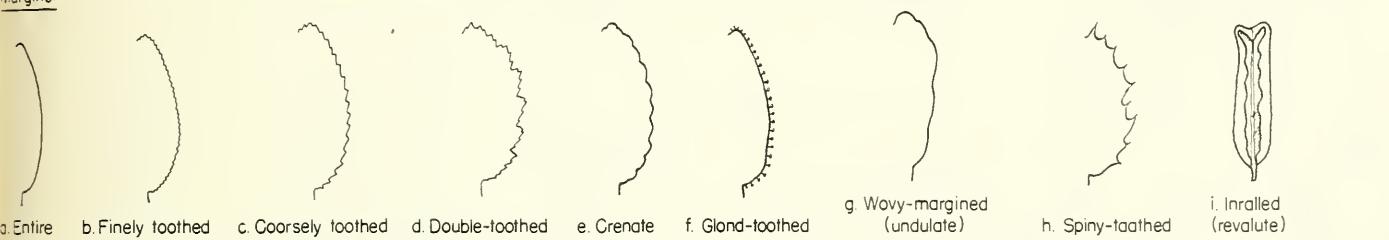
e. Dissected (fern-like)

3 Shapes:



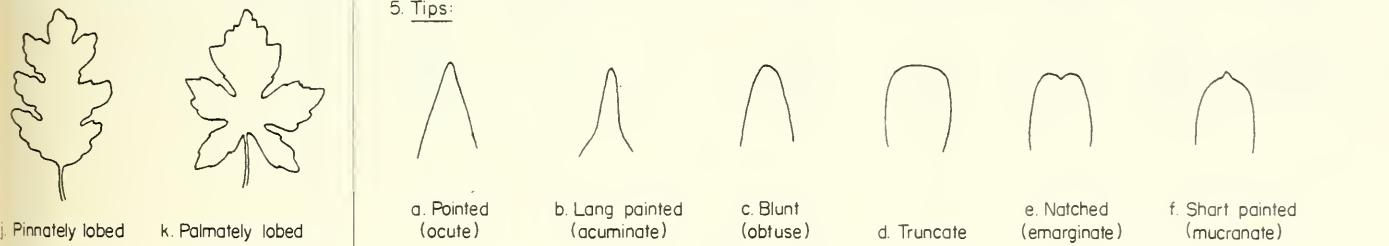
a. Scale-like b. Needle-like c. Awl-shaped d. Linear e. Lanceolate f. Oblong g. Elliptic h. Oval i. Orbicular j. Ovate k. Cordate l. Oblanceolate m. Obovate

4 Margins:



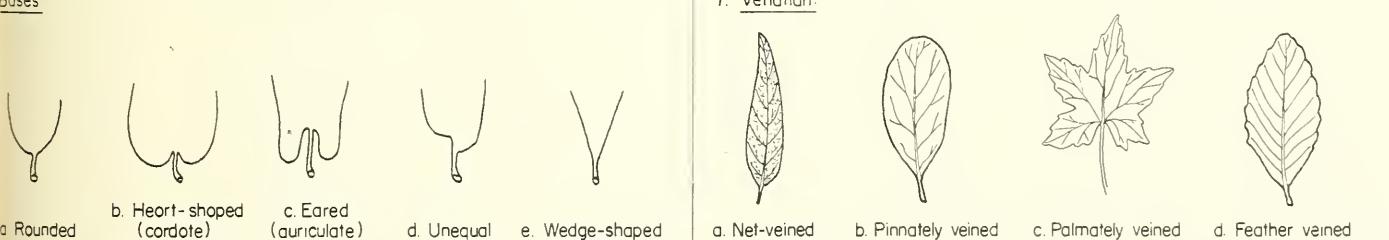
a. Entire b. Finely toothed c. Coarsely toothed d. Double-toothed e. Crenate f. Glond-toothed g. Wavy-margined (undulate) h. Spiny-toothed i. Inrolled (revolute)

5. Tips:



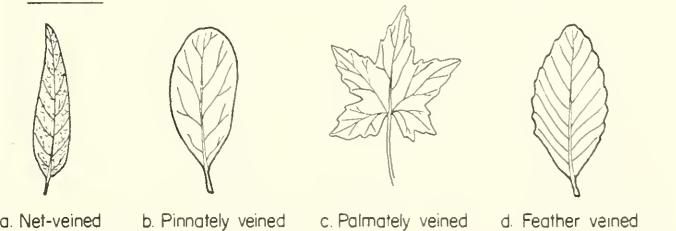
j. Pinnately lobed k. Palmately lobed a. Pointed (acute) b. Long pointed (acuminate) c. Blunt (obtuse) d. Truncate e. Notched (emarginate) f. Short pointed (mucronate)

6 Bases:



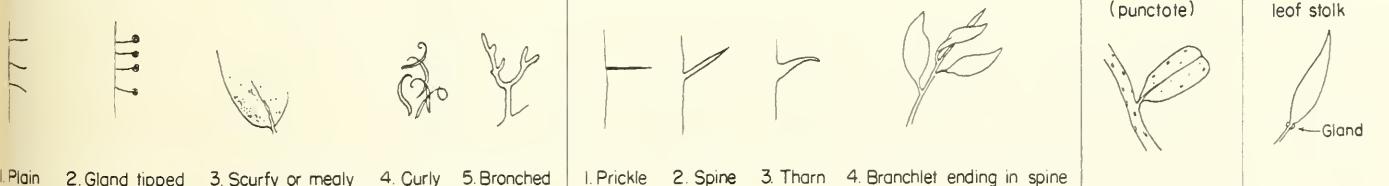
a. Rounded b. Heart-shaped (cordate) c. Eared (auriculate) d. Unequal e. Wedge-shaped a. Net-veined b. Pinnately veined c. Palmately veined d. Feather veined

7. Venation:



8 Some stem and leaf modifications:

a. Types of hairs:



1. Plain 2. Gland tipped 3. Scurfy or mealy 4. Curly 5. Branched 1. Prickle 2. Spine 3. Thorn 4. Branchlet ending in spine c. Resin dotted (punctate) d. Glands on leaf stalk Gland

b. Types of "thorns":



1. Prickle 2. Spine 3. Thorn 4. Branchlet ending in spine

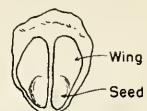
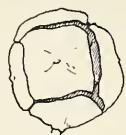


B. CONES

I. Male cones:



2 Female cones:



a. Cane with overlapping scales

b. Cane without overlapping scales

c. Individual cone scale showing position of seed

d. Cone scale with bract

C. FLOWERS

I. Inflorescences (Flower clusters)

a. Nascent inflorescences:



1. Leafy

2. Scale-like

b. Types of flower clusters:



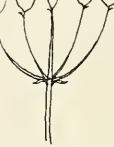
1. Raceme



2. Spike



3. Carymb



4. Umbel



5. Head

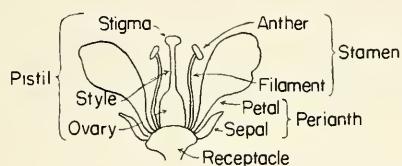


6. Catkin



7. Panicle (compound)

2. Parts of a flower:



Note: The parts of the flower vary considerably in various genera and species. The sepals may be joined together or free. The petals may be joined together to form bell-like, or long, tubular flowers with only the tips free, or the petals may be completely separate. The position and shape of the ovary, number of stamens and their position also varies with different genera and species. The flowers of some species may lack sepals, or petals, or both. If stamens are lacking in a flower then this will be referred to as a female flower, and if the pistil is lacking, then the flower will be referred to as a male.

D. FRUITS

I. Dry Fruits:



a. Capsule



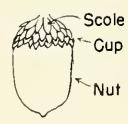
b. Pod (legume)



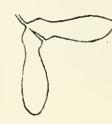
c. Achene



d. Nut

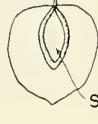


e. Acorn

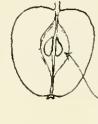


f. Winged (samara)

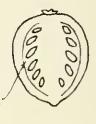
2. Fleshy Fruits:



a. Drupe



b. Pome



c. Berry



d. Aggregate

Table A. - Legend for plant species and miscellaneous elements mapped, with tabulation of sprouting nature and browse values of plants listed

Symbol:	Common Name	Scientific Name	Habit of:	Post-fire sprouting ^{1/} :	Browse sprouting ^{2/} :	Value ^{2/} :	C	G	D
PLANT SPECIES									
Acn	Hoary manzanita	<i>Arctostaphylos canescens</i>	S	N-Spr	5	5	4-5	5	4
Af	Chamise	<i>Adenostoma fasciculatum</i>	S	Spr	5	4-5	3	5	3-4
Ag1	Eastwood manzanita	<i>Arctostaphylos glandulosa</i>	S	Spr	5	5	5	4-5	4
Am	Common manzanita	<i>Arctostaphylos manzanita</i>	S	N-Spr	5	5	5	5	5
B	Black oak	<i>Quercus kelloggii</i>	T	Spr	4	4	4-5	4-5	3-4
C	Canyon live oak	<i>Quercus chrysolepis</i>	T	Spr	5	5	5	5	4
Cb	Birchleaf mountain-mahogany	<i>Cercocarpus betuloides</i>	S	Spr	4	2	1	1	1
Cc	Wedgeleaf ceanothus	<i>Ceanothus cuneatus</i>	S	N-Spr	5	4	3-4	3-4	3
Cfo	Wavyleaf ceanothus	<i>Ceanothus foliosus</i>	S	N-Spr	5	5	4-5	4	4
Ci	Deerbrush ceanothus	<i>Ceanothus integrifolius</i> ^{4/}	S	Spr, N-Spr	4	2-3	1	1	1
D	Douglas-fir	<i>Pseudotsuga taxifolia</i>	T	N-Spr	5	5	5	5	5
D'	Blue oak	<i>Quercus douglasii</i>	T	Spr	4	4	4-5	4-5	3-4
Dp	Digger pine	<i>Pinus Sabiniana</i>	T	N-Spr	5	5	5	5	5
Ec	California yerba santa	<i>Eriodictyon californicum</i>	S	Spr	5	5	5	5	5

QUADRANGLE 46A3

Symbol:	Common Name	Scientific Name	Habit of sprouting:	Growth:	Post-fire sprouting:	Browse Value
G	Oregon white oak	<i>Quercus Garryana</i>	T	Spr	5 4 4-5 4-5 4-5	3-4
Gf	Fremont silk-tassel	<i>Garrya Fremontii</i>	S	Spr	5 4-5 2-4 2-3 2-3	
H	California buckeye	<i>Aesculus californica</i>	T	Spr	5 4 4 2-4 3-4	
K	Knobcone pine	<i>Pinus attenuata</i>	T	N-Spr	5 5 5 5 5	5
L'	California-laurel	<i>Umbellularia californica</i>	T	Spr	5 4 3-4 3-4 3-4	3-4
M	Madrone	<i>Arbutus Menziesii</i>	T	Spr	5 5 4-5 4-5 4-5	4-5
Pa	Toyon	<i>Photinia arbutifolia</i>	S	Spr	5 5 5 5 5	5
Pta	Bracken	<i>Pteridium aquilinum pubescens</i>	H	Spr	5 5 5 5 5	5
Qd	California scrub oak	<i>Quercus dumosa</i>	S	Spr	5 4-5 4-5 4 3-4	
Qdu	Leather oak	<i>Quercus durata</i>	S	Spr	5 5 4-5 4 3-5	3-5
Qw	Scrub interior live oak	<i>Quercus Wislizenii frutescens</i>	S	Spr	5 4 3-5 3-4 3-4	3-4
R	Redwood	<i>Sequoia sempervirens</i>	T	Spr	5 5 5 5 5	5
R	Red alder	<i>Alnus oregona</i>	T	U	5 4 3-4 3-4 2-3	2-3
Rc	California coffeeberry	<i>Rhamnus californica</i>	S	Spr	5 4 4 3-4 3-4	3-4
Rd	Poison-oak	<i>Rhus diversiloba</i>	S	Spr	2-3 4-5 4 4-5 3-4	3-4
Sx	Willows	Salix species	S,T	Spr	5 3 2-4 2-3 2-3	2-3
T	Tanoak	<i>Lithocarpus densiflora</i>	T	Spr	5 5 5 5 5	5

Symbol:	Common Name	Scientific Name	Habit of sprouting:	Post-fire:	Browse Value
:	:	:	Growth:	Growth:	H : C : S : G : D
V	Valley white oak	<i>Quercus lobata</i>	T	Spr	5 4 4-5 4-5 3-4
W	Interior live oak	<i>Quercus wislizenii</i>	T	Spr	5 4 3-5 3-4 3-4
X	Yellow willow	<i>Salix lasiandra</i>	T	Spr	5 4 3 2-3 2-3
Y	Ponderosa pine	<i>Pinus ponderosa</i>	T	N-Spr	5 5 5 5 5

MISCELLANEOUS ELEMENTS

Bare or litter-covered ground, or rocky areas, essentially devoid of vegetation.

Cultivated or fallow fields, natural haylands, and irrigated pastures.

Grasses and other associated herbaceous plants — includes meadows.

1/ T - tree; S - shrub; H - herb.

2/ Spr - sprouts following fire; N-Spr - normally will not sprout if top is fire killed; Spr, N-Spr - observed to sprout following fire in some cases and to be completely killed in others; U - post-fire sprouting capacity not yet observed. Note: some species, though killed by fire, will stump sprout following cutting in the absence of fire.

2/ Kind of animal: H - horses; C - cattle; S - sheep; G - goats; D - deer.
 Browse value, overall ratings, including sprouts after burning or cutting: 1 - Excellent; 2 - Good; 3 - Fair;
 4 - Poor; 5 - Negligible or none.

4/ Ceanothus integrerrimus includes the species and all its varieties.

RECOGNITION KEY
FOR PLANT SPECIES MAPPED

Instructions for Using Key

This Key is prepared for only those trees and shrubs and bushy herbs which have been mapped as dominants on the Vegetation-Soil Map. Do not attempt to use it to identify plants which are obviously uncommon.

It is more desirable to make identifications in the field, than from collected specimens.

It will be noted that in the Key there are two alternative descriptions under each number on the left sides of the pages. Compare the unknown specimen at hand with the two alternatives, starting with number one. Select the alternative which best describes the specimen. If the description is followed by a plant name, then it is not necessary to proceed further. If it is followed by a number on the right side of the page, then proceed to the two alternative descriptions given under that same number on the left side of the page. Again compare the specimen with the alternatives, and follow the same procedures until a plant name is reached. If the unknown plant does not key out to a name, then it is probably not one of the dominant species mapped. In such a case, identification may be made by using a standard botanical manual (e.g. Jepson, W. L., A Manual of the Flowering Plants of California, and McMinn H. E., An Illustrated Manual of California Shrubs), or by submitting a specimen to a university or other institution or agency.

RECOGNITION KEY FOR PLANT SPECIES MAPPED^{1/}

1. Coarse fern; blades large, triangular, divided into numerous segments; no true flowers, cones, or seeds produced BRACKEN
(Pteridium aquilinum pubescens)

Trees or shrubs; leaves various; true flowers or cones, and seeds produced 2

2. Foliage needle-like; seeds borne naked on the scales of woody cones 3

Foliage not needle-like; seeds enclosed, not borne in woody cones. If foliage is needle-like, woody cones absent (Chamise); if simulated small woody cones present, then seeds borne enclosed, and foliage is broad-leaved (Alder) 7

3. Needles borne in bundles of 3 4

Needles borne singly on the branches 6

4. Foliage gray-green, rather sparse and open; cones large, broad; tips of scales developed into thick, triangular hooks; seeds large, tough, short winged DIGGER PINE
(Pinus Sabiniana)

Foliage yellow-green, dense; cones smaller; tips of scales ending in a slender prickle; seeds small, not tough, long winged 5

5. Needles 3 to 5 inches long; cones narrow, elongate and lopsided; upper scales near the stalk very knobby; cone often remaining closed for years KNOBCONE PINE
(Pinus attenuata)

Needles 5 to 10 inches long; cones broader, not obviously lopsided; scales all similar; cones opening the second year after seeds are formed PONDEROSA PINE
(Pinus ponderosa)

6. Needles arranged in 2 rows on the branches, thus appearing as flat sprays, very grayish on under side; cone scales not overlapping, and without obvious bracts REDWOOD
(Sequoia sempervirens)

^{1/} See accompanying "Illustrated Glossary" as aid in using this key.

Needles disposed all around the branch, not in
2 rows, sprays fluffy; leaves green on both
sides; cone scales overlapping; scale with a
3-pronged obvious bract DOUGLAS-FIR
(Pseudotsuga taxifolia)

7. Male and female flowers borne in separate erect
or drooping catkins; fruit a capsule containing
seeds with silky tuft of hairs (Willows); an
acorn (Oaks); small woody cone (Alders); or, if
berry-like, then leaves opposite (Silktassels) 8

Male and female flowers not borne separately
in catkins; fruit various, but if a capsule,
then seeds without silky tuft of hairs; or,
if berry-like, leaves alternate 21

8. Leaves opposite; fruit berry-like FREMONT SILKTASSEL
(Garrya Fremontii)

Leaves alternate; fruit not berry-like 9

9. Leaves entire or finely toothed; male and
female catkins on separate plants; fruit a
capsule containing seeds with silky tufts
of hairs 10

Leaves with coarse teeth, spiny toothed, lobed,
or entire; male and female flowers on same
plant; fruit a small woody cone or an acorn 11

10. Leaf stalks with glands at or near the blade;
large tree YELLOW WILLOW
(Salix lasiandra)

Leaf stalks without glands near the blade;
shrubs or trees WILLOWS
(Salix species)

11. Leaves with coarse teeth and these again
toothed (double-toothed); female catkin de-
veloping into a short (about one inch),
oblong, woody cone RED ALDER
(Alnus oregona)

Leaves variously toothed, or lobed, but not
double-toothed; female catkin developing into
an acorn 12

12. Leaves thick and leathery; toothed; densely cov-
ered with whitish or tan scurf-like or mealy
hairs, upper surface smooth in age; male catkins
erect; acorn cup of hooked spreading scales TANOAK
(Lithocarpus densiflora)

Leaves thinner; nearly entire, or toothed, or lobed; smooth or if hairs are present, then not densely scurfy or mealy; male catkins drooping; Acorn cup of scales but these not hooked or spreading 13

13. Leaves generally lobed; deciduous 14

Leaves variously toothed to entire, not lobed, or if lobed only slightly so and with short spiny teeth; evergreen 17

14. Leaf lobes ending in 1 to 3 or more coarse spine-tipped teeth BLACK OAK
(*Quercus Kelloggii*)

Leaf lobes without spine-tipped teeth 15

15. Branchlets drooping; acorn cups deep and thickly warty; acorn long and slender VALLEY WHITE OAK
(*Quercus lobata*)

Branchlets not drooping; acorn cups shallow, scales finely warty or flattish; acorn short and fat 16

16. Leaves generally 1 to 3 inches long, shallowly lobed, bluntly toothed, or sometimes entire; blue-green above, pale beneath, minutely hairy BLUE OAK
(*Quercus Douglasii*)

Leaves generally 3 to 4 or 6 inches long, deeply 5- to 7- or 9-lobed, dark shiny green above, nearly smooth, rusty or whitish beneath with fine hairs OREGON WHITE OAK
(*Quercus Garryana*)

17. Leaves green above, lead color beneath, sometimes with a fine golden yellow dust; acorn cup usually with a thick golden fuzz which often obscures the scales CANYON LIVE OAK
(*Quercus chrysolepis*)

Leaves green on both surfaces, without lead color or golden yellow dust; acorn cup not yellow fuzzy 18

18. Tree or scrub form with dark or black bark; leaves generally over one inch long; acorn cup deep scales flat and thin, acorn somewhat elongate 19

Low shrubs with white or whitish bark; leaves generally less than one inch long; acorn cup saucer-like; scales warty; acorn shorter and thicker 20

19. Large round headed tree, 30 to 75 feet high;
hills and moist valleys INTERIOR LIVE OAK
(*Quercus Wislizenii*)

Scrub form 4 to 8 feet high; chaparral SCRUB INTERIOR LIVE OAK
(*Quercus Wislizenii frutescens*)

20. Leaves brittle, flat or slightly undulate,
glossy green above CALIFORNIA SCRUB OAK
(*Quercus dumosa*)

Leaves leathery, convex and with inrolled
margin, dull green above, and usually
finely hairy LEATHER OAK
(*Quercus durata*)

21. Large evergreen tree; foliage sharply
aromatic when crushed; fruit fleshy, green
turning purplish, about 1 inch in diameter CALIFORNIA-LAUREL
(*Umbellularia californica*)

Trees or shrubs, foliage not sharply aromatic 22

22. Leaves divided into 3 5 or 7 oblong or
oblong-lanceolate leaflets; deciduous 23

Leaves not divided into leaflets; evergreen 24

23. Shrub 4 to 8 feet, or sometimes vine-like;
leaves divided into 3 leaflets which may be
variously lobed or toothed; flowers small,
greenish or yellowish in an open cluster;
fruit small, whitish POISON-OAK
(*Rhus diversiloba*)

Small round-headed tree, 10 to 20 feet or more
tall; leaflets 5 to 7, uniformly toothed;
flowers showy; ill-scented, white or pinkish-
white, in a dense cylindrical cluster; fruit
large, shining rich brown CALIFORNIA BUCKEYE
(*Aesculus californica*)

24. Plants with smooth, rich reddish brown or
purplish bark which flakes off in thin curls;
flowers bell-shaped, waxen 25

Plants not with smooth reddish-brown bark;
flowers not bell-like 28

25. Tree with large leaves 3 to 6 inches long;
berry-like fruit bright red or yellowish red,
with a granular surface MADRONE
(*Arbutus Menziesii*)

Shrubs, with leaves generally less than 2 inches long; berry-like fruit reddish brown, smooth 26

26. Leaves a pale gray-green, velvety hairy; bracts of nascent inflorescence leafy; stem without burl at base HOARY MANZANITA
(*Arctostaphylos canescens*)

Leaves dark or yellow-green, if hairy, not velvety hairy 27

27. Plant with burl at base of stem; branchlets usually short or long hairy, some or all hairs glandular; bracts of nascent inflorescence leafy EASTWOOD MANZANITA
(*Arctostaphylos glandulosa*)

Plant without burl; branchlets finely downy hairy, hairs not glandular; bracts of nascent inflorescence scale-like COMMON MANZANITA
(*Arctostaphylos manzanita*)

28. Leaves smooth and gummy above, with a prominent network of veins below, between which is a fine dense mat of hairs (the leaves frequently look black because of spores from a fungus growth); flowers tubular CALIFORNIA YERBA SANTA
(*Eriodictyon californicum*)

Leaves various, but not gummy, or if gummy, the leaves needle-like; veins may be evident but not a prominent network; flowers not tubular 29

29. Leaves short, needle-like, often occurring in clusters, somewhat resinous CHAMISE
(*Adenostoma fasciculatum*)

Leaves not needle-like, nor resinous 30

30. Fruit berry-like 31

Fruit not berry-like 32

31. Leaves thick and leathery, dark glossy green above, lighter beneath, the margins regularly coarsely toothed and bristle pointed; flowers small, white, in large clusters; fruit bright or yellowish-red when ripe TOYON
(*Photinia arbutifolia*)

Leaves thinner, dark green but not glossy above, paler beneath, the margins finely toothed to nearly entire, not bristle-pointed; flowers inconspicuous, greenish-yellow, several in a cluster; fruit black when ripe CALIFORNIA COFFEEBERRY
(*Rhamnus californica*)

32. Leaves broadly wedge-shaped, the lower half entire, the upper half toothed, the under surface prominently feather-veined; flowers few, light tan; fruit a small seed with a long feathery tail BIRCHLEAF MOUNTAIN-MAHOGANY
(*Cercocarpus betuloides*)

Leaves various, if wedge-shaped then the leaves opposite; flowers numerous, white or blue; fruit a small capsule 33

33. Rigidly branched shrub; leaves opposite, wedge-shaped, entire or notched at the apex, rarely toothed; flowers in small rounded clusters WEDGELEAF CEANOTHUS
(*Ceanothus cuneatus*)

Branches slender, spreading or drooping; leaves alternate, not wedge-shaped; flowers in clusters longer than broad 34

34. Leaves to 3/4 inch long with smaller ones clustered in the axils, undulate, dark green above, grayish or whitish beneath, margins finely glandular toothed; flower clusters usually simple, 1/4 to 1 inch long, flowers blue WAVYLEAF CEANOTHUS
(*Ceanothus foliosus*)

Leaves 1 to 3 inches long, with no clustered leaves, light green, somewhat paler beneath, margins entire, or sometimes toothed at the apex, not glandular; flower clusters mostly compound, 2-1/2 to 4 inches long; flowers white or blue, rarely pinkish DEERBRUSH CEANOTHUS
(*Ceanothus integerrimus*)

Table B. - Legend for soils mapped, with tabulation of identifying characteristics¹

<u>Symbol</u>	<u>Series Name</u>	<u>: Depth</u>	<u>: Color of</u>	<u>: Parent</u>	<u>: Texture of</u>	<u>: Reaction</u>	<u>: Topography</u>
		<u>: Classes²/</u>	<u>: surface soil</u>	<u>: material</u>	<u>: surface soil</u>		
812	Hugo	3,4,5	Light grayish brown	Sandstone and shale rocks	Loams	Moderately acid	Rolling to steep upland
815	*Occidental	3,4,5	Light reddish brown	Sandstone and shale rocks ^{3/}	Loams	Slightly acid	Rolling to steep upland
816	Sites	3,4,5	Brownish red	Sandstone and shale rocks	Loams	Moderately acid	Rolling to steep upland
832	Los Osos	2,3	Dark brown	Sandstone and shale rocks	Loams	Slightly acid	Rolling to upland ^{4/} hilly
847	*Laughlin	2,3	Light brown	Sandstone and shale rocks	Loams	Slightly acid	Rolling to steep upland
871	Los Gatos	2	Brown or reddish brown	Sandstone and shale rocks ^{2/}	Stony clay loam	Slightly acid	Steep upland
872	Maymen	1	Light grayish brown	Sandstone and shale rocks	Stony loam	Moderately acid	Steep upland

* Provisional name of new series.

^{1/} These are the more typical characteristics found throughout the range of each series. Some variations must be expected in any characteristics listed.

^{2/} Depth class: 1 = less than 1 foot; 2 = 1 to 2 feet; 3 = 2 to 3 feet; 4 = 3 to 4 feet; 5 = over 4 feet.

^{3/} Parent material often metamorphosed.

^{4/} Numerous soil slips are characteristic of this soil.

Table C. - Ratings of the relative suitability of the soils mapped for timber and grass production with a listing of the soil and climatic factors governing suitability

Symbol:	Series Name	Depth classes: Permeability: mapped	Drainage ² :	Toxicity: rainfall: for timber ² , grass ^{2,7} /Inches	Annual ⁴ : Suitability ²
812	Hugo	3	Permeable	Good	No 35-40 Questionable and fair
812	Hugo	4	Permeable	Good	No 35-45 Fair
815	*Occidental Sites	3,4	Permeable	Good	No 35-45 Fair
816		3,4	Permeable	Good	No 35-40 Fair
832	Los Osos	(4)	Permeable	Good	No 50 Unsuited
847	*Laughlin	2,3	Permeable	Good	No 35-40 Unsuited
871	Los Gatos	1,2,3	Permeable	Good to ex- cessive	No 35-40 Unsuited
872	Maymen	1,2,(3)	Permeable	Excessive	No 35-40 Unsuited
					Very poor

* Provisional name of new series.

1/ Depth class: 1 = less than 1 foot; 2 = 1 to 2 feet; 3 = 2 to 3 feet; 4 = 3 to 4 feet; 5 = over 5 feet. Symbols in parentheses are infrequently mapped extremes of typical depth ranges.

2/ Permeability is based on rate of movement of water, air and roots through the soil profile. Relative terms used: Permeable: slowly permeable; very slowly permeable.

terms used: Permeable; slowly permeable; very slowly permeable.
2/ Drainage is an expression of the disposition of water applied to the surface of a soil. It either drains through the profile rapidly or slowly to a deep or shallow depth (internal drainage) - being affected by depth of soil and profile development - or drains off the surface (runoff) ... being affected by topographic position. Relative terms used: Excessive (e.g. soils on steep slopes); good; imperfect (e.g. soils having very slowly permeable subsoils); poor (e.g. soils having very slowly permeable subsoils occurring on flat topography).

4/ Based on isohyetal map prepared in 1941 by U. S. Army Engineers.
5/ Unsuit = noncommercial; poor = sites 1, 2, V; fair = sites 3, 4, IV; good = sites 5, 6, III; very good = sites 7, II; questionable = conclusive evidence of suitability to grow commercial stands of timber is lacking.

6/ Suitability based on soil and climatic characteristics. Relative ratings used: Very poor, poor, fair, good, very good.
 7/ Ratings based on potential capacities of soils, not necessarily on existing vegetation at time of mapping.

